

Outline

- Moths vs. butterflies
- Quick review of the major families of (macro) moths

Moths vs. Butterflies

- In US, 800 species of butterflies, 10,000+ species of moths
- In SE Arizona, 250 species of butterflies, 2500+ species of moths
- Moths
 - Antenna not clubbed (One exception in AZ),
 - mostly night fliers.
 - some colorful day fliers
- Butterflies
 - Clubbed antenna
 - all day fliers, usually colorful

Major families of butterflies

- Hesperiiidae (skippers)
- Papilionidae (Swallowtails)
- Pieridae (whites & sulphurs)
- Lycaenidae (blues and hairstreaks)
- Riodinidae (metalmarks)
- Nymphalidae (brush-footed butterflies)

Hesperiiidae

- 111 species in SE Arizona



"hooked" club on antenna



Papilionidae

- Swallowtails, 11 SE AZ species
- Big, with tails!



Pieridae

- Whites & Sulphurs, 30 AZ species



Lycaenidae

- Blues, coppers, hairstreaks
- 32 SE AZ species
- Small (less than 2 cm)
 - Usually contain some blue (blues)
 - Or tails/tail projection on hindwing (hairstreaks)



Riodinidae

- Metalmarks, 10 SE AZ species



Nymphalidae

- Brush-footed butterflies
- 73 SE AZ species
- Forelegs are very small (often appearing four-legged)
- Many common species





Major families of moths

- General distinction between
 - Macrolepidoptera
 - Microlepidoptera
- Focus here will be on macroleps, however, some families of “microleps” have very large species (2-3 inches)

Sphingidae (Hawkmoths)

- 145 species in US, 45 species from SE Arizona
- Fairly distinctive, "fighter-airplane" shaped
- A few day fliers
- Larvae are hornworms.



Hemaris thysbe – Hummingbird Clearwing Moth



Hyles lineata – White-lined Sphinx Moth



Saturniidae (Silkmoths)

- 68 Species in US
- 27 Species in SE Arizona
- Some of our largest, and most colorful, moths
- Species in the genus *Hemileuca* are day-fliers



Automeris iris – Iris-eyed Silkmoth



Agapema homogena



Rothschildia cinctus



Hyalophora gloveri – Glover's Silkmoth



A. oculea (5th instar)
Photo by C. Conlan



E. calleta (5th instar)
Photo by C. Conlan

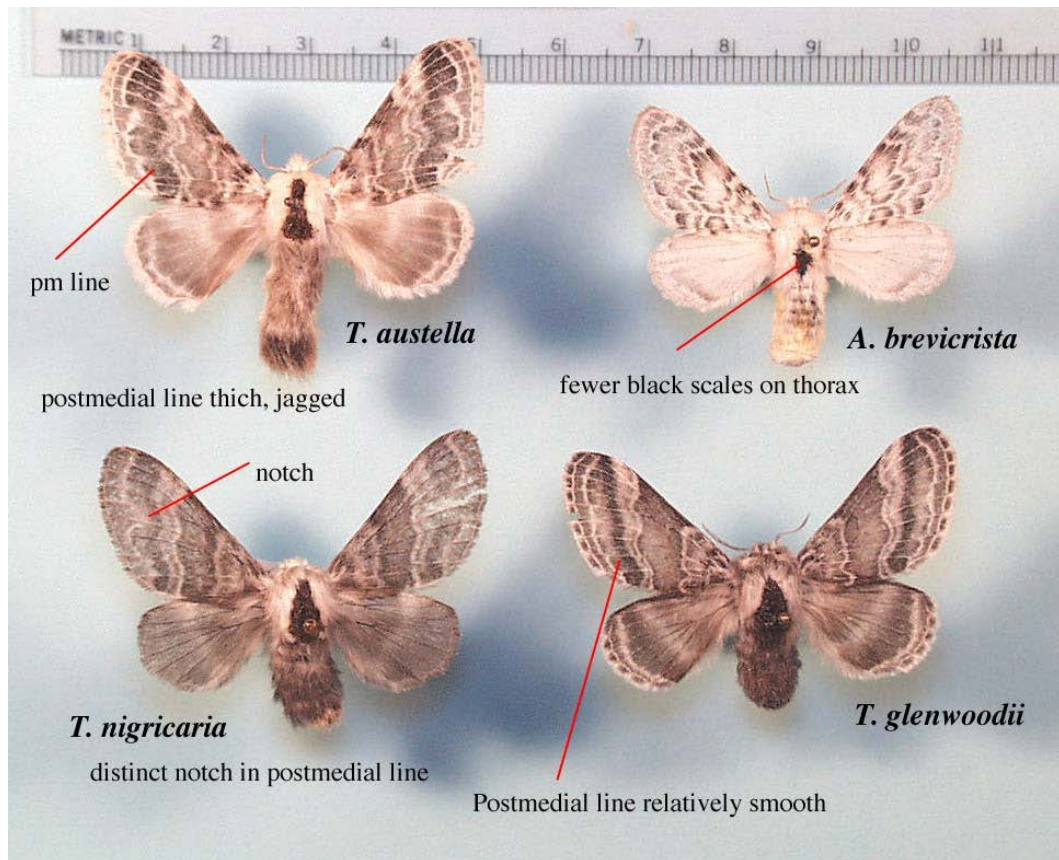


Lasiocampidae (Tent Caterpillars)

- 35 Species in North America
- 16 species in SE Arizona
- Larvae are often gregarious, some making tents
- Includes several very large moths
- Close relatives to silkmoths
- A few species have day flying males that do not come to light







Apatelodidae

- Close relatives of the tent caterpillars (*Lasiocampidae*)
- 5 Species in NA, 2 in Arizona, including one that is rather common, *Apatelodes pudefacta*
- Also a close relative of Silkmoths



Mimallonidae

- One AZ species, *Lacosoma arizonicum*



Geometridae (Inchworms)

- 1400 NA species
- 400+ species in SE Arizona
- Usually with fairly distinct angular wings
- Larvae are inchworms





Notodontidae (Prominents)

- 160+ Species in NA, 50+ known species from SE Arizona
- Strong sexual dimorphism
- Notodontids vs. Noctuids --
 - Notodontids more narrowly-winged
 - Notodontids often with feathery antenna
- Larvae very distinctive



AZ Chocise Co., 4000 ft Babocomari River, 6 NNE
Huachuca City. MV + UV lights. 19 May 2001. J. B. Walsh leg



ex larvae, on Populus, Tolland Co, CT
20 Aug 1998 Copyright D. L. Wagner





Lirimiris sp.
(formerly *truncata*)



Astylis biedermani



Dalceridae

- One AZ, NA species



Note the very short antenna

Thrididae

- 2 AZ species



Drepanidae

- 2 SE AZ species



Megalopygidae (Flannel moths)

- 11 species in NA
- 6 in SE Arizona
- The larvae are covered with stinging hairs.





Limacodidae
(Slug-caterpillar Moths)

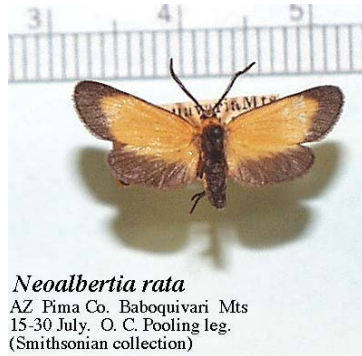
- 52 species in NA
- 12 in Arizona
- The larvae are amazing





Zygaenidae (Burrants)

- 22 species in NA
- 12 in SE Arizona
- Small, often colorful, day fliers.
Usually hard to see



Sesiidae (Clear-wing moths)

- 115 NA species
- 46+ SE Arizona species
- ALL day fliers
- Common, but usually entirely overlooked
- Collected using sex pheromone traps (brings in males only)



Paranthrene dollii



Paranthrene robiniae



Melittia calabaza



Sesia tibiale

Cossidae (Carpenter-moths)

- 45 NA species
- 20 SE Arizona species
- Larvae bore into wood



Prionoxystus robiniae

Lymantriinae

- Tussock moths, 4 SE AZ species



Arctiinae (Tigermoths)

- ~ 300 species in NA, ~ 100 species in SE Arizona
- Adults are mostly quite colorful
- Several are day-fliers
- Larvae are "woolly-bear" caterpillars



Dysschema howardi – Northern Giant Flag Moth



Estigmene albida

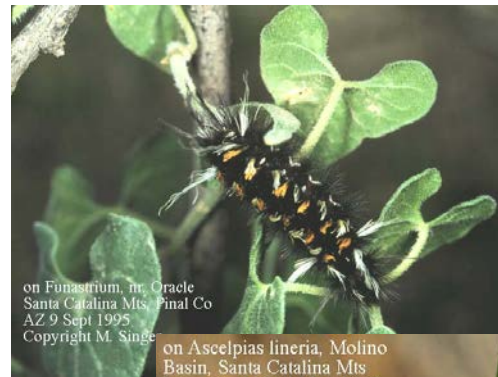
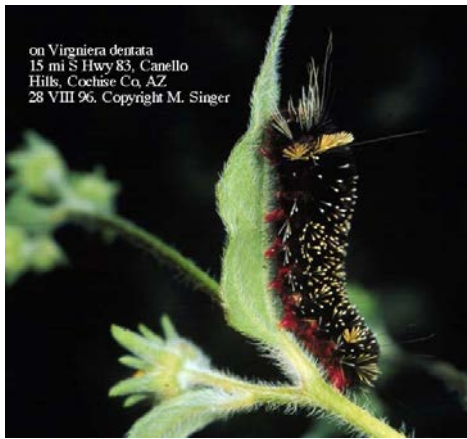


Arachnis zuni



Phoenicoprocta hampsonii





Old: *Noctuidae* (Cutworms)

- 3000 species in US
- 900+ in SE Arizona
- Contains our largest moth, the Black Witch
- 19 subfamilies in Arizona
- Species are usually dull (black/brown/grey), although some rather colorful
- Larvae are cutworms

Major changes in higher-order classification

- Old:
 - Noctuids (Noctuidae),
 - tiger moths (Arctiidae),
 - tussock moths (Lymantriidae)_all separate families
- New:
 - tiger moths, tussock moths, and some Noctuids are members of Erebidae
 - Also have three new families
 - Eutelidae
 - Nolidae
 - Noctuidae

New: The breakup of Noctuids

- Erebidae
 - Lymantriinae (tussock moths)
 - Arctiinae (tiger moths)
 - Erebidae (a chunk of the old nocutids)
- Eutelidae
- Nolidae
- Noctuidae
 - The bulk of the rest of the nocutids

Erebidae

- The old noctuids in the Erebidae now in 17 subfamilies
- Essentially, all of the early subfamilies of noctuids on the Hodges checklist up through the Catocalinae









Eutelidae

- Five SE Arizona species



Eutelia pulcherrimus [MONA 8968]

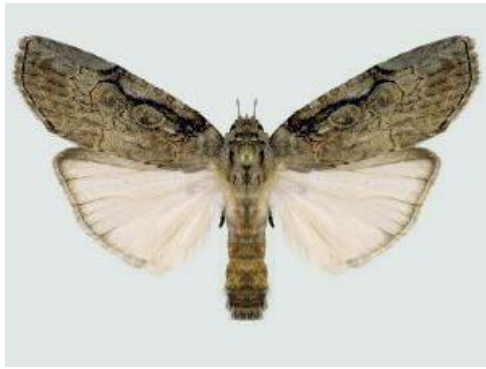
AZ Cochise Co. Huachuca Mts
Ash Cyn, 5100 ft, 10 Aug 1991
D. C. Ferguson leg (Smithsonian collection)



Nolidae

- 7 SE AZ species





Nocutidae

- The family contain the rest (majority) of the old Nocutidae
- 20 subfamilies. Includes the old subfamilies (some renamed and many split further)
 - Plusiinae
 - Acontiinae (bird-dropping moths)
 - Pantheinae
 - Acronictinae (dagger moths)
 - Agarristinae (forester Moths)
 - Amphipyridae
 - Stiriinae
 - Cuculliinae
 - Hadeninae
 - Noctuinae
 - Heliothinae



Plusiinae



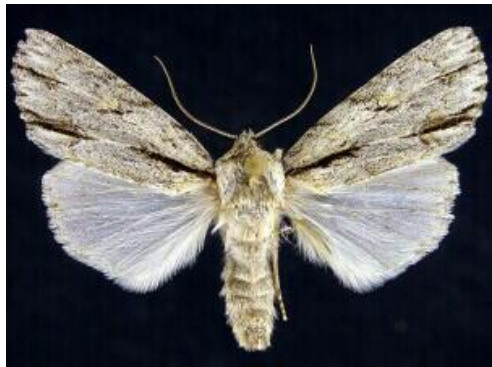
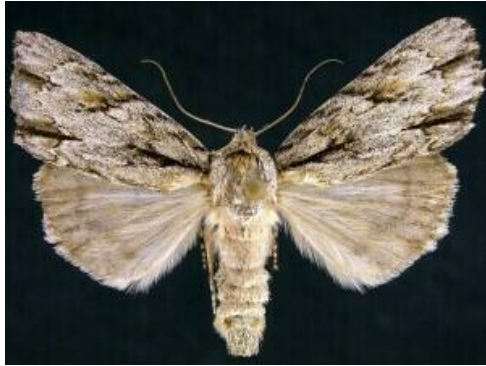
Acontiinae



Pantheinae



Acronictinae



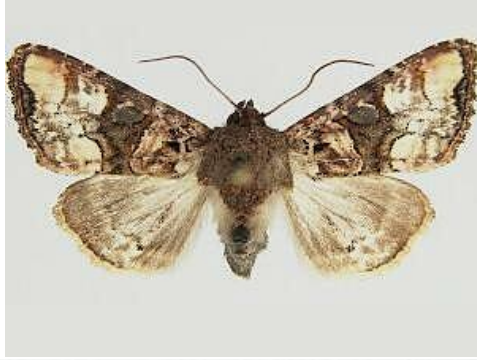
Agarristinae





Amphipyrinae

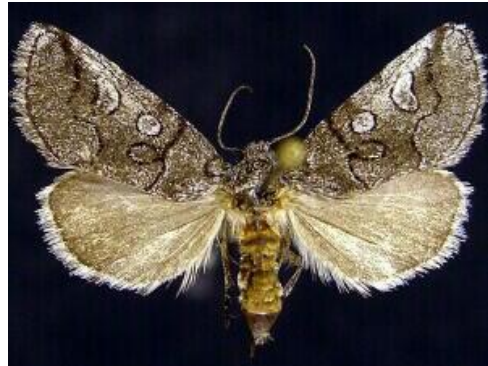




Stirinae

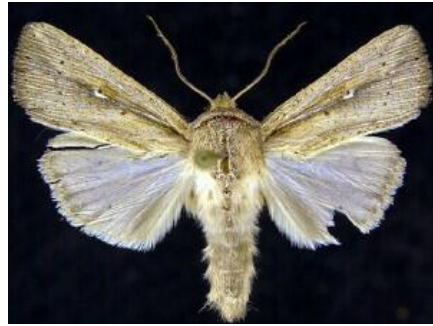


Cuculliinae



Hadeninae





Noctuinae



Heliothinae

